SCHEME OF MCA COURSE

MCA FIRST SEMESTER :

Course No.	Course Name	C/E/S	L	T	P	Credit
101MCA	Introduction to Information Technology	Core	4	-	-	4
102MCA	Mathematical Foundations of Computer Science	Core	4	-	-	4
103MCA	Programming and Problem Solving in 'C'	Core	4	-	-	4
104MCA	Computer Organization and Assembly Language Programming	Core	4	-	-	4
105MCA	Oral and Written Communication	Skill	4	-	-	4
106MCA	Programming Laboratory in 'C'	Core	-	-	4	4
107MCA	Seminar	Core	-	-	1	1
108MCA	Assignment	Core	-	-	1	1
109MCA	Comprehensive Viva- Voice (Virtual credit)	Core	-	-	-	4

Total Credit : #26+4 (Virtual Crédit)

MCA SECOND SEMESTER :

Course No.	Course Name	C/E/S	L	T	P	Credit
201MCA	Operating Systems	Core	4	-	-	4
202MCA	Database Management Systems	Core	4	-	-	4
203MCA	Data Structures Using 'C' language	Core	4	-	-	4
204MCA	Probability and Combinatorics	Core	4	-	-	4
205MCA	Software Engineering	Core	4	-	-	4
206MCA	Programming Laboratory in RDBMS (SQL &PLSQL)	Core	-	-	4	4
207MCA	Seminar	Core	-	-	1	1
208MCA	Assignment	Core	-	-	1	1
209MCA	Comprehensive Viva- Voice (Virtual credit)	Core	-	-		4

Total Credit : #26+4 (Virtual Crédit)

MCA THIRD SEMESTER :

Course No.	Course Name	C/E/S	L	T	P	Credit
301MCA	Computer Networks	Core	4	-	-	4
302MCA	Object Oriented Programming using C++	Core	4	-	-	4
303MCA	E1/E2	Centric	4	-	-	4
304MCA	Computer based Numerical and Statistical Techniques	Core	4	-	-	4
305MCA	Organisational Behaviour	Core	4	-	-	4
306MCA	Project in C++	Core	-	-	4	4
307MCA	Seminar	Core	-	-	1	1
308MCA	Assignment	Core	-	-	1	1
309MCA	Comprehensive Viva- Voice (Virtual credit)	Core	-	-		4

Total Credit : #26+4 (Virtual Crédit)

MCA FOURTH SEMESTER :

Course No.	Course Name	C/E/S	L	T	P	Credit
401MCA	Analysis and Design of Algorithms	Core	4	-	-	4
402MCA	E3/E4	Centric	4	-	-	4
403MCA	Java Programming	Core	4	-	-	4
404MCA	Optimization Techniques	Core	4	-	-	4
405MCA	Accounting & Management Control	Core	4	-	-	4
406MCA	Project in Java	Core	-	-	4	4
407MCA	Seminar	Core	-	-	1	1
408MCA	Assignment	Core	-	-	1	1
409MCA	Comprehensive Viva- Voice (Virtual credit)	Core	-	-	-	4

Total Credit : #26+4 (Virtual Crédit)

MCA FIFTH SEMESTER :

Course No.	Course Name	C/E/S	L	T	P	Credit
501MCA	Artificial Intelligence and Expert Systems	Core	4	-	-	4
502MCA	Computer Graphics and Multimedia	Core	4	-	-	4
503MCA	Simulation and Modeling	Core	4	-	-	4
504MCA	Dataware housing and data mining	Core	4	-	-	4
505MCA	E5 / E6	Centric	4	-	-	4
506MCA	Project in .Net Technology	Core	-	-	4	4
507MCA	Seminar	Core	-	-	1	1
508MCA	Assignment	Core	-	-	1	1
509MCA	Comprehensive Viva- Voice (Virtual credit)	Core	-	-	-	4

Total Credit : #26+4 (Virtual Crédit)

MCA SIXTH SEMESTER :

Course No.	Course Name	C/E/S	L	T	P	credit
601MCA	System Development Project (Here student is required to undertake six months system development project in the Industry or in a Computer Organization and submit a detailed project report)	skill	-	-	-	12
602MCA	Comprehensive Viva –voce (Virtual credit)	Core				4

Total Credit : #12+4 (Virtual Crédit)

Elective course List

Elective	Course Name
E1	Unix & shell scripting
E2	ERP & BPR Allied Concepts
E3	Theory of computation
E4	Distributed System
E5	Cloud Computing
E6	.Net Technology

101MCA: INTRODUCTION TO INFORMATION TECHNOLOGY

UNIT 1-Basic concepts of IT, concepts of Data & Info, data processing, history of computers (generation, type of languages), organization of computers, I/O devices, storage devices, system software, application software, utility packages, numerical based on storage devices. Concept of communication and network technology, Applications of IT.

UNIT 2-Assembler : Elements of assembly language programming, a simple assembly scheme, pass structure of assembler, design of two pass assemblers, a single pass assemblers. Macros & Macro Processors : Macro definition & Call, Macro expansion Nested macro calls, advanced macro facilities, design of macro processors

UNIT 3-Compilers & Interpreters : aspects of compilation, memory allocation, compilation of expression compilation of control structures, code optimization, interpreters. Software Tools : Software tools for program development, editors, debug monitors, programming environment, user interfaces.).

UNIT 4-Linker & Loaders : Relocation & linking concepts, design of linkers, self relocating programs, a linker for MS DOS, linking for overlays, loaders : A two pass loader scheme, Relocating loaders, subroutine linkage, Direct linkage loader, Binders overlays.

UNIT 5-Sequential file organisation, random file organisation, index structure, indexed file organisation, alternate key indexed sequential files, multi key organisation, multi key access, multi list file organisation, inverted files & their definition , insertion, deletion, operations with optimum utilization of memory, comparison of various type of file organization

References :

1. D.M. Dhamdhere " System Programming & O.S." Second Ed.
2. J.Donovan"SystemProgramming"THM.
3. Rajaraman V. "Fundamental of Computers" (4nd edition.) Prentice Hall of India, New Delhi 2004
4. SardesD.H."Computer stoday"McGrawHill1988.
5. S.Jaiswal,"FundamentalofComputer&IT",WileydreamtechIndia.

102MCA : MATHMATICAL FOUNDATIONS OF COMPUTER SCIENCE

UNIT 1-Sets Relations and Functions :Sets, Subsets, Power-Sets, Complement, Union and intersection. Demorgan's law Cardinality, relations: Cartesian Products, relations relational Matrices, properties of relations, equivalence*relation Functions: Injection, Surjection, Bijection Composition of Functions, Permutations. Cardinality, the characteristic functions Recursive definitions, finite induction. Lattices & Boolean Algebra:

UNIT 2-Axiomatic definition of Boolean algebra as algebraic structures with two operations. Proposition & Prepositional functions, Logical connections Truth values and Truth Table the algebra of prepositional functions-the algebra of truth values-Applications (switching circuits, Basic Computer Components).

Groups and Fields:

UNIT 3- Groups: Group axioms-permutation groups; Subgroups, Co-sets, Normal Subgroups, Free semi groups; Modular arithmetic grammars, language.

UNIT 4-Fields : Definition; structure; minimal polynomials; irreducible polynomials; primitive Elements., polynomial roots; Applications (Error Correcting Codes Sequence generation).

UNIT 5-Graphs: Finite graphs; incidence and degree, isomorphism, sub graphs and union of graphs ; Connectedness ; walks paths and circuits Eulerian graphs. Trees properties of trees; pendant vertices in a tree, Center of tree Spanning trees and Cut vertices; Binary tree Matrix representation of a graph, Incidence, Adjacency matrices and their properties. Applications of graphs in Computer Science.

REFERENCES:

1."Discrete Mathematical Structure with applications to Computer Science "by J.P. Trembley & R.P. Manohar.
2. "Discrete Mathematics " by K.A. Ross and C.R.B.Writh
3. "Discrete Mathematical Structures for Computer Science" by Bernard Kolman & Robert C. Busby